Inspection Report For Well: UT20736 - 06677

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 9/24/2013

INSPECTOR(S): Lead: Roberts, Sarah — Date: 10/~~11~~ 12 /2013

Others: Ajayi, Christopher — Time: 10:35 (am) / pm

OPERATOR (only if different): _____

REPRESENTATIVE(S): Chad Stevenson

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name:	Ute Tribal 18-07 (old 7-18)		
Well Type:	Enhanced Recovery (2R)		
Operating Status:	AC (ACTIVE) as of 7/1/2006		
Oil Field:	Antelope Creek (Duchesne)		
Location:	SWNE S18 T5S R3W		
Indian Country:	X, Uintah and Ouray		
Last Inspection:	8/29/2012	***Allowable Inj Pressure:***	1720 /
Last MIT:	Pass 5/31/2011	***Annulus Pressure From Last MIT:***	900

BLACK = POSSIBLE VIOLATION GREY = DATA MISSING

INSPECTION TYPE: (Select One)

- ☐ Construction / Workover
- ☐ Plugging
- ☐ Post-Closure
- ☐ Response to Complaint
- ☒ Routine
- ☐ Witness MIT
- ☐ Other

ICIS Entered
Date 1/2/14
Initials DB

OBSERVED VALUES:

Tubing Gauge:	☒ Yes ☐ No	Pressure: U: 1636 / L: ____ psig	Gauge Range: scada psig	Gauge Owner:	☐ EPA ☒ Operator
Annulus Gauge:	☒ Yes ☐ No	Pressure: 0 psig	Gauge Range: opened psig	Gauge Owner:	☒ EPA ☐ Operator
Bradenhead Gauge:	☐ Yes ☐ No	Pressure: ____ psig	Gauge Range: ____ psig	Gauge Owner:	☐ EPA ☐ Operator
Pump Gauge:	☐ Yes ☐ No	Pressure: ____ psig	Gauge Range: ____ psig	Gauge Owner:	☐ EPA ☐ Operator

Operating Status: (Select One)
☒ Active ☐ Being Reworked ☐ Not Injecting ☐ Production ☐ Plugged and Abandoned ☐ Under Construction

U2 Entered
Date 12/17/13
Initial SC

See page 2 for photos, comments, and site conditions.

GREEN	BLUE	CBI
	1	

Inspection Report For Well: UT20736 - 06677 (PAGE 2)

PHOTOGRAPHS: ☐ Yes ☒ No List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s): _____ _____

☐ Data Entry ☐ Compliance Staff ☐ Hard Copy Filing

NOTICE OF INSPECTION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 12/16/13
Hour: 8:00a

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Firm Name: Petroglyph Operating, Inc.

Firm Address: Roosevelt, UT, Antelope Creek Oil Field

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Sarah Roberts
Inspector's Name & Title (Print)

Inspector's Signature

EPA R8 3560-1 (8-89)

Original - Regional Office Copy
Yellow Copy - Operator Copy

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

APR 30 2007

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Steve Wall, District Manager
Petroglyph Energy, Inc.
4116 West 3000 So. Ioka Lane
Roosevelt, UT 84066

RE: AUTHORIZATION TO CONTINUE INJECTION
EPA Permit No. UT20736-06677
Ute Tribal 18-07
Duchesne County, Utah

Dear Mr. Wall:

Thank you for submitting to Region 8 Ground Water Program office of the Environmental Protection Agency (EPA) the results from the November 21, 2006 Radioactive Tracer Survey (RTS) used to demonstrate Part II (External) Mechanical Integrity (MI) in the Ute Tribal 18-07 Class II injection well. The results of the RTS were reviewed and approved on November 21, 2006 and the EPA has determined that the test adequately demonstrated Part II MI; that injected fluids remained confined within the authorized injection interval at or below the Maximum Authorized Injection Pressure (MAIP) of **1720 psig** during the RTS.

The EPA hereby authorizes continued injection into Ute Tribal 18-07 under the terms and conditions of EPA Well Permit No. UT20736-06677 at an **MAIP of 1720 psig.**

You may apply for a higher maximum allowable injection pressure at a later date. Your application should be accompanied by the interpreted results from a Step-Rate Test (SRT) that measures the formation fracture pressure and the fracture gradient at this location. A current copy of EPA Guidelines for running and interpreting a SRT will be sent upon request. Should the SRT result in approval of a higher maximum allowable injection pressure, a new Part II MI demonstration must be run to show that the injected fluids will remain in the authorized injection interval at the higher pressure. Please note that to use a pressure greater than the **MAIP of 1720 psig** during a SRT and RTS; you must first receive prior written authorization from the Director. You are also reminded that the duty to conduct another demonstration of Part II MI repeats every five years.

As of this approval, responsibility for Permit Compliance and Enforcement is transferred to Region 8 UIC Technical Enforcement Program office. Therefore, please direct all future notification, reporting, monitoring and compliance correspondence to the following address, referencing your well name and UIC Permit number on all correspondence regarding this well:

US EPA, Region 8
Attn: Nathan Wiser
MC: ENF-UFO
1595 Wynkoop Street
Denver, CO 80202

Please be reminded that it is your responsibility to be aware of and to comply with all conditions of your Permit. If you have any questions regarding this approval, please call Patricia Pfeiffer at 800-227-8917 (ext 312-6271). For questions regarding notification, testing, monitoring, reporting or other Permit requirements, Nathan Wiser of the UIC Technical Enforcement Program may be reached by calling 800-227-8917 (ext 312-6211).

Sincerely,

Stephen S. Tuber
Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

cc: Maxine Natchees, Chairperson
Uintah & Ouray Business Committee
Ute Indian Tribe
P.O. Box 190
Fort Duchesne, UT 84026

Ronald Groves, Councilman
Uintah & Ouray Business Committee
Ute Indian Tribe
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Chester Mills, Superintendent
BIA - Uintah & Ouray Indian Agency
P.O. Box 130
Fort Duchesne, UT 84026

Mr. Kenneth Smith
Executive Vice President and Chief Operating Officer
Petroglyph Energy, Inc.
555 S. Cole Blvd
Boise, ID 83709

Shawn Chapoose, Director
Land Use Department
Ute Indian Tribe
P.O. Box 460
Fort Duchesne, UT 84026

Gil Hunt
Technical Services Manager
Utah Division of Oil, Gas, and Mining
1594 West North Temple - Suite 1220
Salt Lake City, UT 84114-5801

Fluid Minerals Engineering Office
BLM - Vernal Office
170 South 500 East
Vernal, UT 84078

Lynn Becker, Director
Energy and Minerals Department
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, UT 84026

bcc w/o enclosures:

Judy Hervig, 8TAP
Nathan Wiser, ENF-UFO

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

MAY 1 - 2007

Mr. Steve Wall
District Manager
Petroglyph Energy, Inc
4116 West 3000 So. Ioka Lane
Roosevelt, UT 84066

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Patti Cox ☒ Agent ☐ Addressee

B. Received by (Printed Name) Patti Cox C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

MAY - 3 2007

RECEIVED
MAY 07 2007
EPA Region 8
Ground Water Program

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7005 0390 0000 4848 3210

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

7005 0390 0000 4848 3210

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

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OFFICIAL USE

Postage	$
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Restricted Delivery Fee (Endorsement Required)	
Total F	

Postmark Here

Sent To Mr. Steve Wall
District Manager
Petroglyph Energy, Inc
Street, / or PO B 4116 West 3000 So. Ioka Lane
City, St Roosevelt, UT 84066

PS Form 3800, June 2002 See Reverse for Instructions

UIC Program Action : Authorization to Inject

Permit Number: UT20736-06677 . **Well Name:** Ute Tribal 18-07 .

Form or Non-Form **Operator:** Petroglyph .

		Mailcode	Initials	Date
Writer: Tricia Pfeiffer	Phone: 303-312-6271	8P-W-GW	JP	4/11/07
UIC Review	❑ DWJ ❑ CT ☒ NW (8ENF-UFO)	8P-W-GW	NW	4-12-07
June Carnal, *Admin*	*Proof*	8P-W-GW	JC	4/13/07
S Pratt, Dir, GWP	☒ **concur** ❑ **signature**	8P-W-GW	[illegible]	4/18/07
D Thomas, Dir, WP	☒ **concur** ❑ **signature**	8P-W	[illegible]	4/19/07
M Brennan, *Admin*	*proof*	8-P	MB [illegible]	4/19/07
S Tuber, ARA, OPRA	☒ **signature**	8-P	[illegible]	4/20
June Carnal	**Data Entry; date stamp & mail original letter & copy of docs to Addressee**	8P-W-GW		
			JC	4/30/07
June Carnal, *Admin*	*mail copies to CC's*	8P-W-GW		
Tricia Pfeiffer	*file documents*	8P-W-GW		

LEFT SIDE
- ➤ Concurrence Copy
- ➤
- ➤

RIGHT SIDE
- ➤ Response Letter
- ➤
- ➤

COMMENTS:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

Ref: 8P-W-GW

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CONCURRENCE COPY

Steve Wall, District Manager
Petroglyph Energy, Inc.
4116 West 3000 So. Ioka Lane
Roosevelt, UT 84066

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EPA Permit No. UT20736-06677
Ute Tribal 18-07
Duchesne County, Utah

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Sincerely,

Stephen S. Tuber
Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

cc: Maxine Natchees, Chairperson
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Technical Services Manager
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Energy and Minerals Department
Ute Indian Tribe
P.O. Box 70
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bcc w/o enclosures:

Judy Hervig, 8TAP
Nathan Wiser, ENF-UFO

OMB No. 2040-0042 Approval Expires 11/30/2014

United States Environmental Protection Agency
Washington, DC 20460

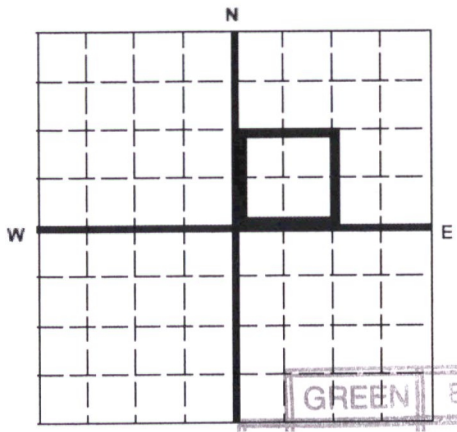
EPA

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-06677

Surface Location Description
___ 1/4 of ___ 1/4 of SW 1/4 of NE 1/4 of Section 18 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 2236 ft. frm (N/S) N Line of quarter section
and 1855 ft. from (E/W) E Line of quarter section.

UIC Entered
Date 4/4/17
Initial DB

WELL ACTIVITY
- [ ] Brine Disposal
- [X] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [X] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 18-07

GREEN BLUF TAB 2

MONTH	YEAR	INJECTION PRESSURE AVERAGE PSIG	INJECTION PRESSURE MAXIMUM PSIG	TOTAL VOLUME INJECTED BBL	TOTAL VOLUME INJECTED MCF	TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING) MINIMUM PSIG	TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING) MAXIMUM PSIG
January	16	1571	1605	489		40	125
February	16	1667	1678	643		0	120
March	16	1643	1684	636		0	120
April	16	1622	1672	554		0	130
May	16	1617	1689	504		0	140
June	16	1530	1656	445		0	120
July	16	1600	1623	466		80	120
August	16	1647	1687	500		0	120
September	16	1622	1683	425		20	120
October	16	1646	1690	518		0	125
November	16	1579	1646	364		0	120
December	16	1633	1668	511		110	120

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		03/21/2017

EPA Form 7520-11 (Rev. 12-11)

Petroglyph Operating Company, Inc.
Annulus Pressure Cause and Mitigation Measures
EPA Annual Injection Report for Reporting Period 2016

Well Name: Ute Tribal 18-07

UIC Permit Number: UT2736-04434

API Number: 43-013-31533

Cause of Pressure and Mitigation Measures:

This well occasionally builds up a small amount of annulus pressure due to formation temperature. Pressure is relieved, but returns and stabilizes typically below 200 PSIG.

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

multi-chem
A HALLIBURTON SERVICE

Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 18-07 INJ, DUCHESNE**	Lab Tech:	**Kaitlyn Natelli**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2017**		
Sample ID:	**WA-345374**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	**1/23/2017**
System Temperature 1 (°F):	**300**
System Pressure 1 (psig):	**2000**
System Temperature 2 (°F):	**130**
System Pressure 2 (psig):	**50**
Calculated Density (g/ml):	**1.0017**
pH:	**8.30**
Calculated TDS (mg/L):	**6398.78**
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	**0.00**
H_2S in Gas (%):	
H2S in Water (mg/L):	**10.00**
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	**0.00**
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	**2124.19**	Chloride (Cl):	**2500.00**
Potassium (K):	**20.71**	Sulfate (SO_4):	**50.00**
Magnesium (Mg):	**17.44**	Bicarbonate (HCO_3):	**1586.00**
Calcium (Ca):	**36.09**	Carbonate (CO_3):	
Strontium (Sr):	**3.27**	Hydroxide(HO):	
Barium (Ba):	**8.46**	Acetic Acid (CH_3COO)	
Iron (Fe):	**20.93**	Propionic Acid (C_2H_5COO)	
Zinc (Zn):	**14.22**	Butanoic Acid (C_3H_7COO)	
Lead (Pb):	**0.00**	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Ammonia NH_3:		Fluoride (F):	
Manganese (Mn):	**0.12**	Bromine (Br):	
Aluminum (Al):	**0.19**	Silica (SiO_2):	**17.35**
Lithium (Li):	**2.80**	Calcium Carbonate ($CaCO_3$):	
Boron (B):	**3.63**	Phosphates (PO_4):	**11.49**
Silicon (Si):	**8.11**	Oxygen (O_2):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum $CaSO_4 \cdot 2H_2O$		Celestite $SrSO_4$		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	1.40	28.26	1.09	4.58	4.25	9.06	3.25	15.20	0.00	0.00	0.00	0.00	0.00	0.00	11.65	7.43
149.00	267.00	1.46	28.70	1.00	4.47	4.20	9.06	3.35	15.21	0.00	0.00	0.00	0.00	0.00	0.00	11.39	7.43
168.00	483.00	1.54	29.28	0.92	4.37	4.18	9.06	3.45	15.21	0.00	0.00	0.00	0.00	0.00	0.00	11.18	7.43
187.00	700.00	1.63	29.79	0.87	4.28	4.18	9.06	3.55	15.21	0.00	0.00	0.00	0.00	0.00	0.00	10.99	7.43
206.00	917.00	1.73	30.22	0.83	4.21	4.21	9.06	3.65	15.22	0.00	0.00	0.00	0.00	0.00	0.00	10.83	7.43
224.00	1133.00	1.84	30.57	0.81	4.17	4.26	9.06	3.74	15.22	0.00	0.00	0.00	0.00	0.00	0.00	10.69	7.43
243.00	1350.00	1.95	30.84	0.80	4.15	4.31	9.06	3.83	15.22	0.00	0.00	0.00	0.00	0.00	0.00	10.57	7.43
262.00	1567.00	2.07	31.04	0.80	4.15	4.39	9.06	3.90	15.22	0.00	0.00	0.00	0.00	0.00	0.00	10.47	7.43
281.00	1783.00	2.19	31.20	0.81	4.17	4.47	9.06	3.98	15.22	0.00	0.00	0.00	0.00	0.00	0.00	10.38	7.43
300.00	2000.00	2.31	31.31	0.82	4.20	4.56	9.06	4.04	15.22	0.00	0.00	0.00	0.00	0.00	0.00	10.31	7.43

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

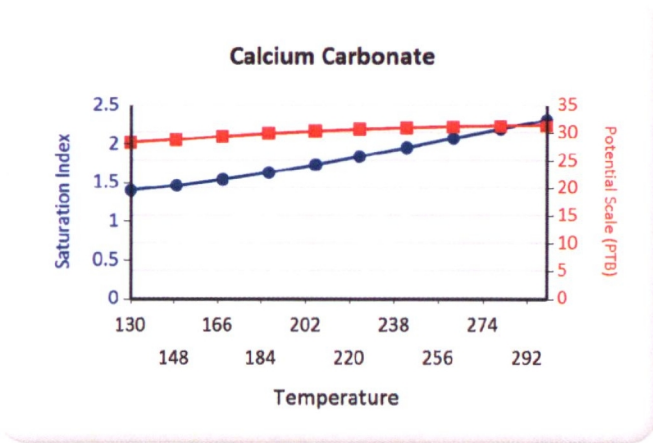
multi-chem®
A HALLIBURTON SERVICE

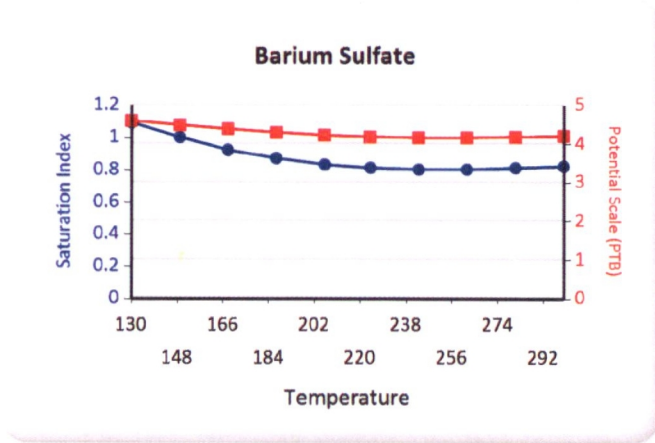
Water Analysis Report

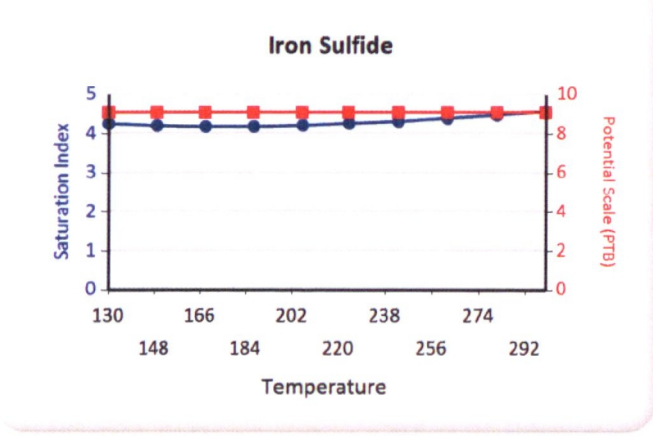
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	2.75	9.54	0.00	0.00	3.14	16.46	1.49	9.41	11.32	16.26
149.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.95	9.55	0.00	0.00	3.89	20.04	1.90	11.78	11.79	16.26
168.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	3.16	9.55	0.00	0.00	4.70	24.08	2.35	14.57	12.34	16.27
187.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34	9.55	0.00	0.00	5.50	27.59	2.81	17.17	12.91	16.27
206.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	3.51	9.56	0.00	0.00	6.29	30.36	3.27	19.35	13.48	16.28
224.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	3.66	9.56	0.00	0.00	7.07	32.28	3.72	20.98	14.05	16.28
243.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	3.79	9.56	0.00	0.00	7.82	33.48	4.16	22.06	14.61	16.28
262.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	3.91	9.56	0.00	0.00	8.54	34.15	4.59	22.69	15.17	16.28
281.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	4.01	9.56	0.00	0.00	9.24	34.50	5.00	23.04	15.70	16.28
300.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	4.09	9.56	0.00	0.00	9.91	34.67	5.40	23.23	16.22	16.28

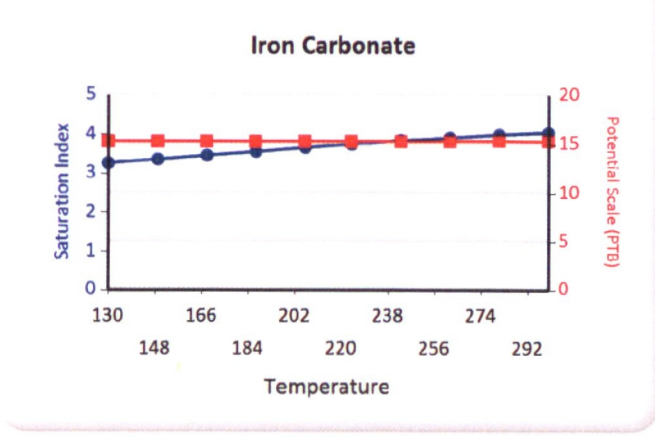
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate









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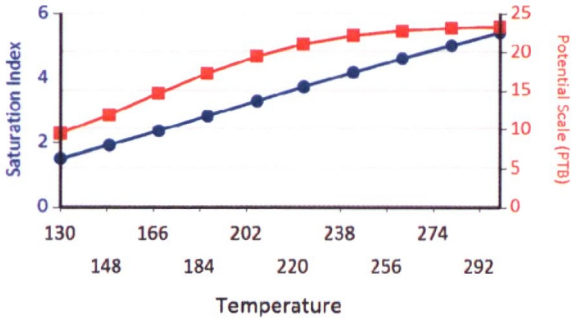
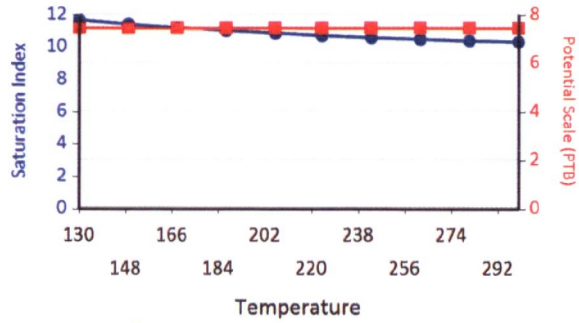
Water Analysis Report

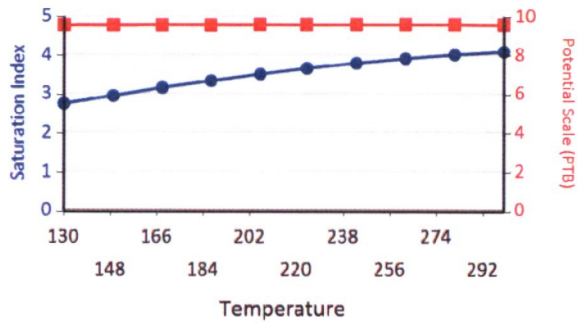
Ca Mg Silicate



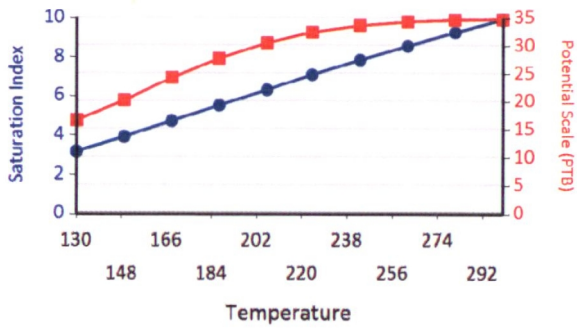
Zinc Sulfide



Zinc Carbonate



Mg Silicate



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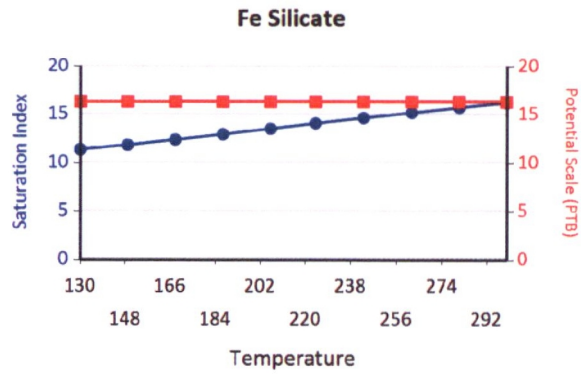
Water Analysis Report



OMB No. 2040-0042 Approval Expires 11/30/2014

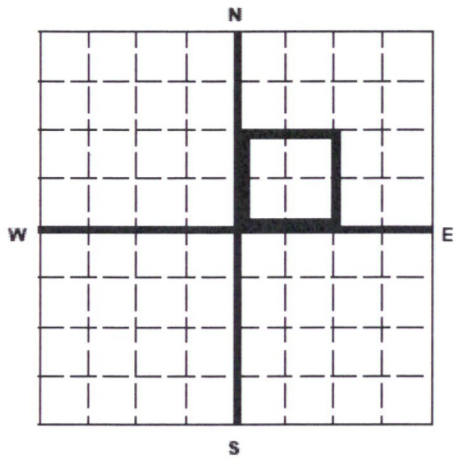
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-~~04434~~ 06677

Surface Location Description
___ 1/4 of ___ 1/4 of SW 1/4 of NE 1/4 of Section 18 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 2236 ft. frm (N/S) N Line of quarter section
and 1855 ft. from (E/W) E Line of quarter section. U2 Entered

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Date 3/1/16
Initial DJ

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 18-07

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	1577	1604	900		0	0
February	15	1651	1676	881		0	0
March	15	1622	1689	755		0	0
April	15	1592	1639	738		0	110
May	15	1617	1659	848		0	100
June	15	1625	1676	797		0	0
July	15	1620	1668	771		0	0
August	15	1587	1608	618		0	0
September	15	1547	1675	474		0	0
October	15	1596	1596	594		0	0
November	15	1650	1694	649		0	0
December	15	1621	1666	590		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		02/08/2016

EPA Form 7520-11 (Rev. 12-11)

TAB GREEN BLUE CBL 2

Petroglyph Operating Company, Inc.
Annulus Pressure Cause and Mitigation Measures
EPA Annual Injection Report for Reporting Period 2015

Well Name: Ute Tribal 18-07

UIC Permit Number: UT2736-06677

API Number: 43-013-31533

Cause of Pressure and Mitigation Measures:

This well occasionally builds up a small amount of annulus pressure due to formation temperature. Pressure is relieved, but returns and stabilizes typically below 200 PSIG.

PETROGLYPH

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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 18-07 INJ, DUCHESNE**	Lab Tech:	**Michele Pike**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2016**		
Sample ID:	**WA-327557**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/14/2016
System Temperature 1 (°F):	60
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	180
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0030
pH:	6.80
Calculated TDS (mg/L):	8166.46
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	24.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	2703.99	Chloride (Cl):	4000.00
Potassium (K):	2.28	Sulfate (SO_4):	540.00
Magnesium (Mg):	82.33	Bicarbonate (HCO_3):	610.00
Calcium (Ca):	185.53	Carbonate (CO_3):	
Strontium (Sr):	5.31	Acetic Acid (CH_3COO)	
Barium (Ba):	0.16	Propionic Acid (C_2H_5COO)	
Iron (Fe):	5.39	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	1.01	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.83	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.04	Silica (SiO_2):	29.59
Aluminum (Al):	0.08	Calcium Carbonate ($CaCO_3$):	
Lithium (Li):	0.73	Phosphates (PO_4):	3.39
Boron (B):	0.49	Oxygen (O_2):	
Silicon (Si):	13.83		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.56	45.15	0.01	0.00	0.00	0.00	1.10	3.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167.00	267.00	0.39	32.06	0.03	0.01	0.00	0.00	0.91	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	483.00	0.29	23.48	0.06	0.01	0.00	0.00	0.78	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	700.00	0.18	15.15	0.10	0.02	0.00	0.00	0.65	2.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127.00	917.00	0.09	7.17	0.15	0.03	0.00	0.00	0.52	2.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	1133.00	0.00	0.00	0.21	0.04	0.00	0.00	0.39	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1350.00	0.00	0.00	0.28	0.05	0.00	0.00	0.26	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	1567.00	0.00	0.00	0.37	0.06	0.00	0.00	0.14	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	0.00	0.00	0.48	0.06	0.00	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	0.00	0.00	0.60	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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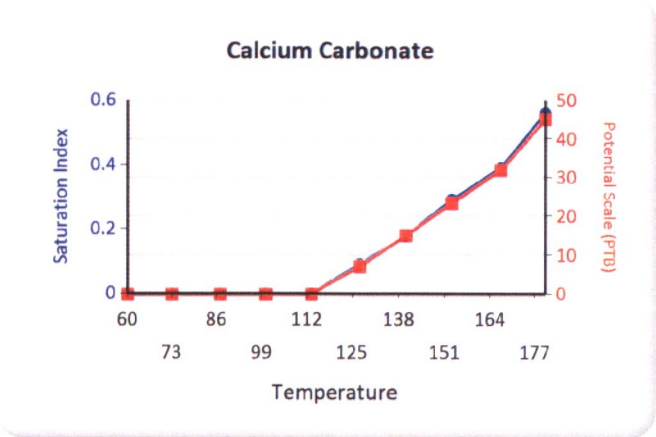
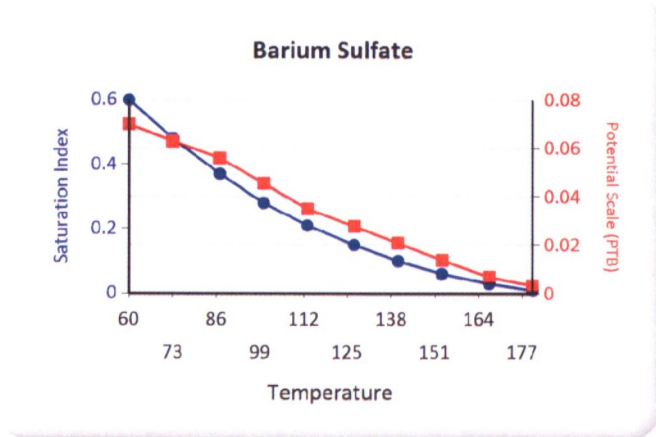
Water Analysis Report

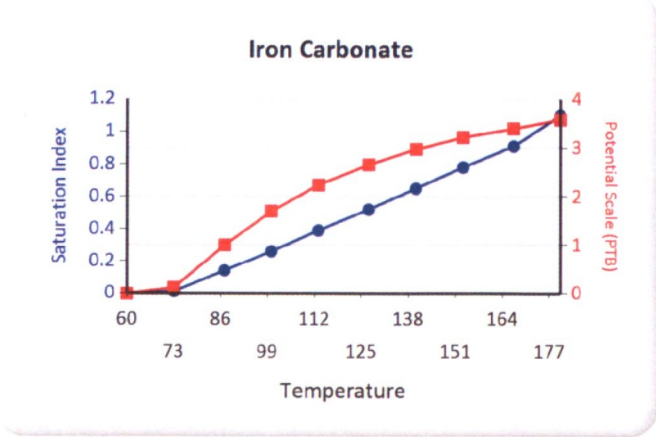
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.40	0.00	0.00	0.00	0.00	0.00	0.00	3.38	3.81
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.19	0.00	0.00	0.00	0.00	0.00	0.00	2.38	3.39
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	2.90
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	2.15
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	1.05
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Barium Sulfate







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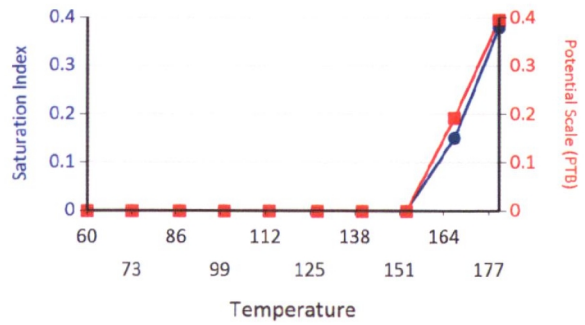
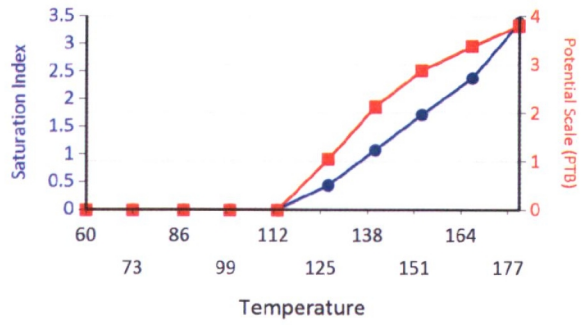
Water Analysis Report

Zinc Carbonate



Fe Silicate



UT20736-06677

Mechanical Integrity Test
Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 5/30/16
Test conducted by: CHAD STEVENSON
Others present: _____

Well Name: 18-07 Type: ER SWD **Status:** AC TA UC
Field: ANTELOPE CREEK
Location: 18-07 Sec: ___ T ___ N / S R ___ E / W County: DUCHESNE State: UT
Operator: PETROGLYPH ENERGY
Last MIT: / / **Maximum Allowable Pressure:** _____ **PSIG**

Regularly scheduled test? [X] Yes [ ] No
Initial test for permit? [ ] Yes [ ] No
Test after well rework? [ ] Yes [ ] No

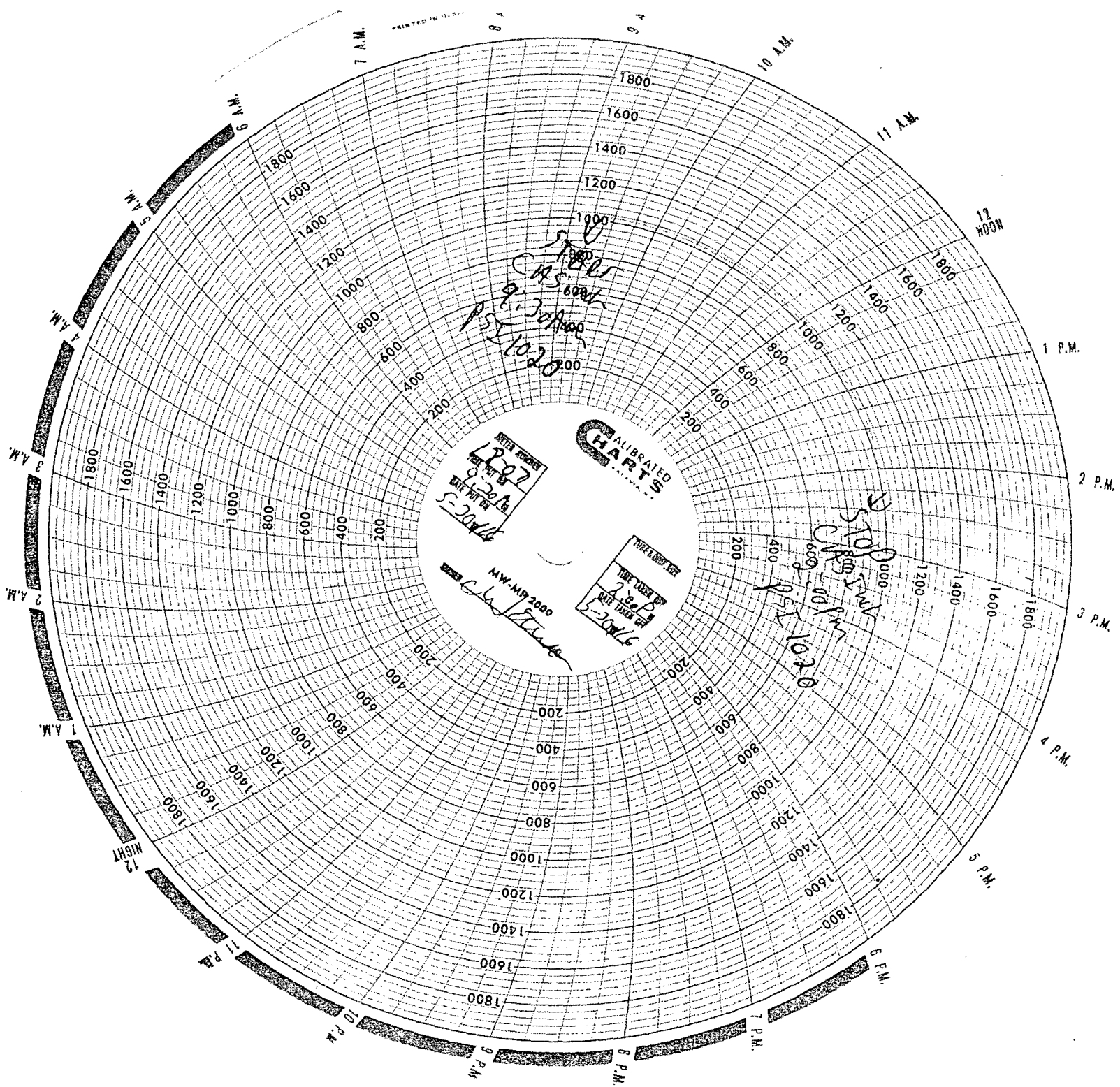
Well injecting during test? If Yes, rate: 18 **bpd**
Pre-test annulus pressure: _____ **psig**

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING		**PRESSURE RECORD**	
Initial Pressure	1622 psig	psig	psig
End of test pressure	1622 psig	psig	psig
CASING / TUBING ANNULUS		**PRESSURE RECORD**	
0 minutes	1020 psig	psig	psig
5 minutes	1020 psig	psig	psig
10 minutes	1020 psig	psig	psig
15 minutes	1020 psig	psig	psig
20 minutes	1020 psig	psig	psig
25 minutes	1020 psig	psig	psig
30 minutes	1020 psig	psig	psig
4 1/2 Hours minutes	1020 psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail

Does the annulus pressure build back up after the test ? If Yes, _____ **psig.**

TAB GREEN 2

UIC Entered
Date 7/29/16
Initial DD


CALIBRATED CHARTS
MW-MP 2000
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
12 NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
12 MIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
6 A.M.
1800
1600
1400
1200
1000
800
600
400
200

OMB No. 2040-0042 Approval Expires 12/31/2011

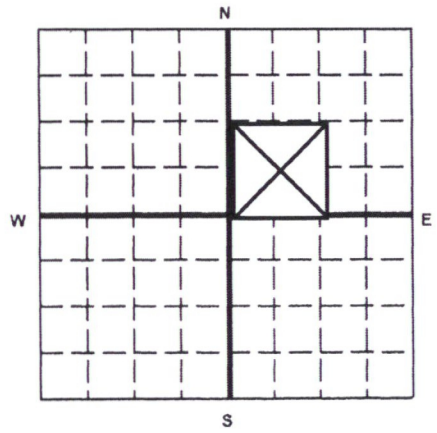
United States Environmental Protection Agency
Washington, DC 20460

EPA

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-06677

Surface Location Description

___ 1/4 of ___ 1/4 of SW 1/4 of NE 1/4 of Section 18 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 2236 ft. frm (N/S) N Line of quarter section and 1855 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY
- [ ] Brine Disposal
- [X] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [X] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 18-07

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	1667	1682	1312		0	0
February	14	1671	1674	1139		0	0
March	14	1621	1661	1186		0	0
April	14	1669	1684	1274		0	80
May	14	1668	1676	1270		0	40
June	14	1615	1687	1035		0	100
July	14	1465	1649	800		0	60
August	14	1643	1688	~~1040~~	940 inj mnthly.	0	140
September	14	1380	1544	407		0	0
October	14	1541	1563	977		0	110
November	14	1649	1667	1100		0	0
December	14	1653	1678	1056		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/10/2015

EPA Form 7520-11 (Rev. 12-08)

U2 Entered
Date 3/23/15
Initial GW

TAB	GREEN	BLUE	CBI
		2	

Petroglyph Operating Company, Inc.
Annulus Pressure Cause and Mitigation Measures
2014 EPA Annual Injection Report

Well Name: Ute Tribal 18-07

UIC Permit Number: UT2736-06677

API Number: 43-013-31533

Cause of Pressure and Mitigation Measures:
This well sometimes builds up a small amount of pressure due to formation temperature. The pressure is relieved but returns and stabilizes below 200 PSIG.

PETROGLYPH

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1553 East Highway 40
Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**
Well Name: **UTE TRIBAL 18-07 INJ, DUCHESNE**
Sample Point: **WELLHEAD**
Sample Date: **1/7/2015**
Sample ID: **WA-297436**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/14/2015
System Temperature 1 (°F):	160
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	80
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.0046
pH:	8.10
Calculated TDS (mg/L):	11202.63
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	5.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	3243.34	Chloride (Cl):	6000.00
Potassium (K):	45.08	Sulfate (SO_4):	89.00
Magnesium (Mg):	17.83	Bicarbonate (HCO_3):	1708.00
Calcium (Ca):	33.57	Carbonate (CO_3):	
Strontium (Sr):	5.83	Acetic Acid (CH_3COO)	
Barium (Ba):	15.78	Propionic Acid (C_2H_5COO)	
Iron (Fe):	10.62	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	7.02	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.00	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.14	Silica (SiO_2):	26.42

Notes:
B=6.1 Al=.06 Li=1.8

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	1.06	23.86	1.78	9.23	3.65	4.53	2.43	7.69	0.00	0.00	0.00	0.00	0.00	0.00	11.56	3.67
88.00	157.00	1.04	23.39	1.70	9.19	3.55	4.53	2.45	7.69	0.00	0.00	0.00	0.00	0.00	0.00	11.36	3.67
97.00	300.00	1.06	23.69	1.62	9.14	3.49	4.53	2.50	7.69	0.00	0.00	0.00	0.00	0.00	0.00	11.20	3.67
106.00	443.00	1.09	24.01	1.55	9.10	3.45	4.53	2.54	7.70	0.00	0.00	0.00	0.00	0.00	0.00	11.05	3.67
115.00	585.00	1.11	24.34	1.49	9.05	3.41	4.53	2.59	7.70	0.00	0.00	0.00	0.00	0.00	0.00	10.91	3.67
124.00	728.00	1.13	24.66	1.43	9.00	3.38	4.53	2.64	7.70	0.00	0.00	0.00	0.00	0.00	0.00	10.78	3.67
133.00	871.00	1.16	25.00	1.37	8.95	3.35	4.53	2.69	7.70	0.00	0.00	0.00	0.00	0.00	0.00	10.66	3.67
142.00	1014.00	1.19	25.32	1.33	8.90	3.33	4.53	2.73	7.70	0.00	0.00	0.00	0.00	0.00	0.00	10.54	3.67
151.00	1157.00	1.22	25.65	1.28	8.84	3.32	4.53	2.78	7.71	0.00	0.00	0.00	0.00	0.00	0.00	10.44	3.67
160.00	1300.00	1.25	25.96	1.24	8.79	3.31	4.53	2.82	7.71	0.00	0.00	0.00	0.00	0.00	0.00	10.34	3.67

		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	4.55	0.00	0.00	0.00	0.00	0.00	0.00	7.59	8.19
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	4.58	0.00	0.00	0.00	0.00	0.00	0.00	7.60	8.19
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	4.62	0.00	0.00	0.10	0.73	0.00	0.00	7.83	8.20
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	4.64	0.00	0.00	0.51	2.93	0.00	0.00	8.08	8.21
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95	4.66	0.00	0.00	0.91	5.17	0.00	0.00	8.33	8.22
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	4.68	0.00	0.00	1.33	7.44	0.21	1.56	8.60	8.23
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	4.68	0.00	0.00	1.74	9.73	0.45	2.99	8.87	8.24
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	4.69	0.00	0.00	2.16	12.03	0.68	4.43	9.15	8.24
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	2.36	4.70	0.00	0.00	2.58	14.31	0.92	5.86	9.44	8.24
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	2.46	4.70	0.00	0.00	3.00	16.54	1.16	7.26	9.73	8.25

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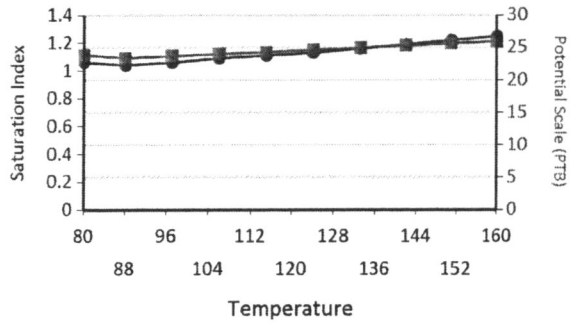
Water Analysis Report

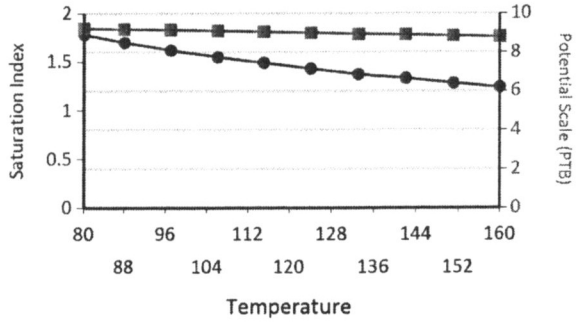
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

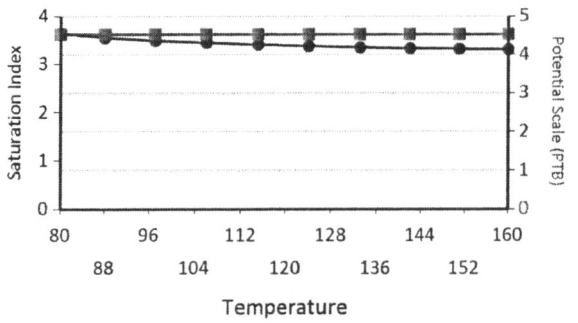
Calcium Carbonate



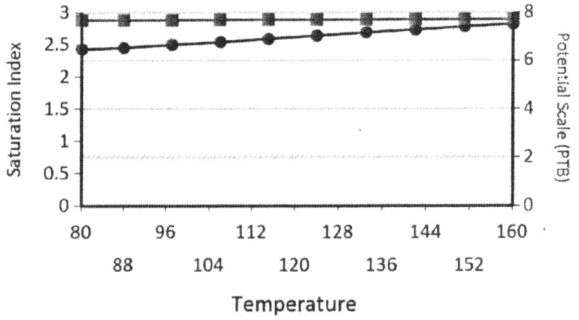
Barium Sulfate



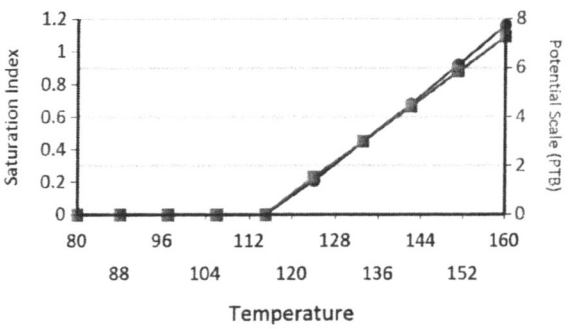
Iron Sulfide



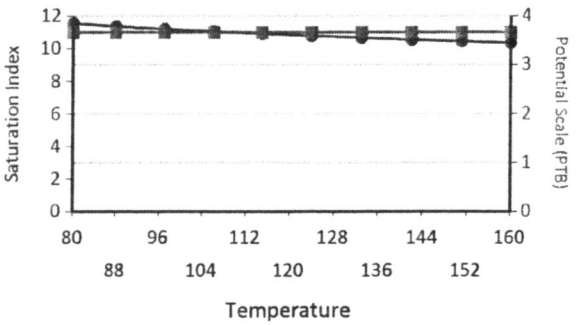
Iron Carbonate



Ca Mg Silicate



Zinc Sulfide



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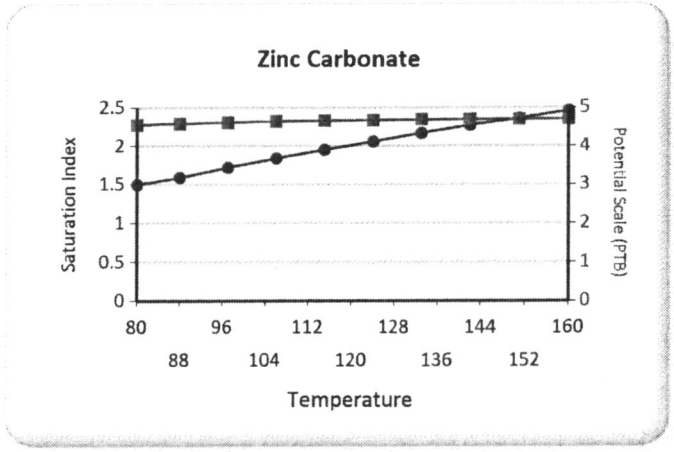
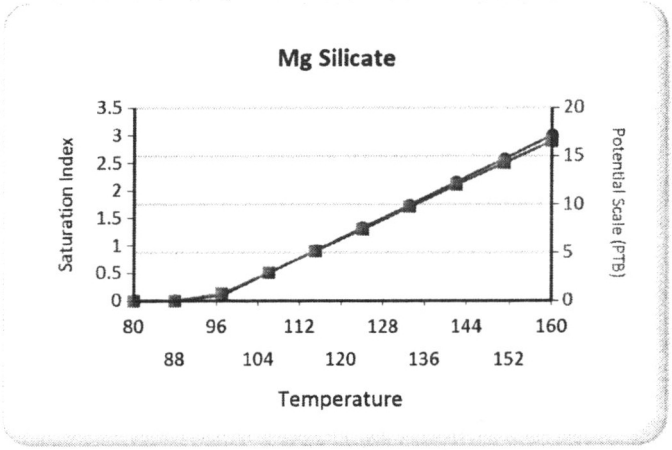
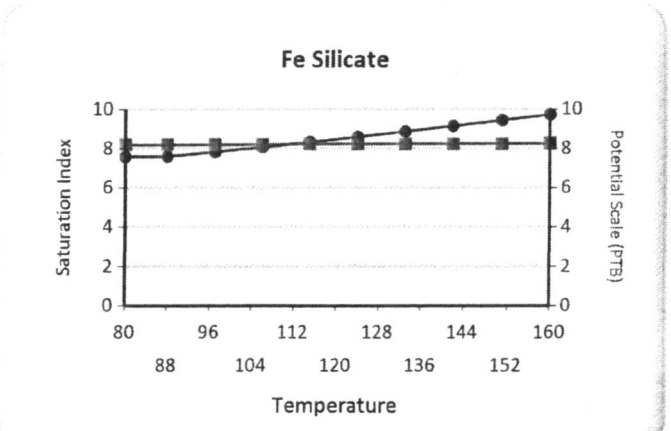






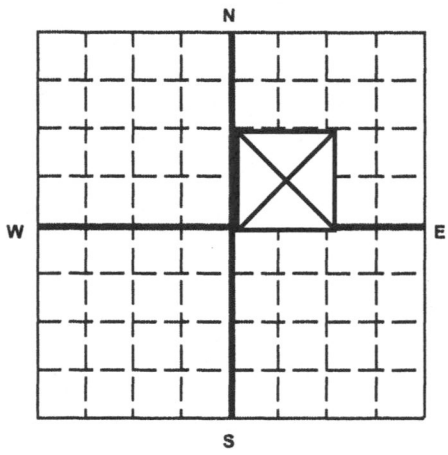
OMB No. 2040-0042 Approval Expires 12/31/2011

United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-06677

Surface Location Description

___ 1/4 of ___ 1/4 of SW 1/4 of NE 1/4 of Section 18 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 2236 ft. frm (N/S) N Line of quarter section and 1855 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY
- ☐ Brine Disposal
- ☒ Enhanced Recovery
- ☐ Hydrocarbon Storage

TYPE OF PERMIT
- ☐ Individual
- ☒ Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 18-07

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	13	1541	1616	1291		0	110
February	13	1643	1645	1609		0	140
March	13	1605	1647	1361		0	150
April	13	1634	1673	1420		0	100
May	13	1634	1686	1470		0	120
June	13	1574	1585	1147		0	80
July	13	1591	1647	1133		0	110
August	13	1545	1636	1066		0	110
September	13	1527	1650	1037		0	0
October	13	1579	1694	1187		0	110
November	13	1635	1661	1218		0	110
December	13	1620	1653	1151		0	100

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/11/2014

EPA Form 7520-11 (Rev. 12-08)

GREEN	BLUE	CBI
	2	

U2 Entered
Date 2/20/14
Initial

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**
Well Name: **UTE TRIBAL 18-07 INJ**
Sample Point: **Wellhead**
Sample Date: **1/8/2014**
Sample ID: **WA-262967**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/15/2014
System Temperature 1 (°F):	180
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	60
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.008
pH:	8.40
Calculated TDS (mg/L):	15548.48
CO2 in Gas (%):	
Dissolved CO2 (mg/L)):	0.00
H2S in Gas (%):	
H2S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	5452.82	Chloride (Cl):	7000.00
Potassium (K):	118.00	Sulfate (SO_4):	33.00
Magnesium (Mg):	20.00	Bicarbonate (HCO_3):	2830.40
Calcium (Ca):	45.00	Carbonate (CO_3):	
Strontium (Sr):	6.00	Acetic Acid (CH_3COO)	
Barium (Ba):	16.00	Propionic Acid (C_2H_5COO)	
Iron (Fe):	1.00	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.30	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.01	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.27	Silica (SiO_2):	25.68

Notes:
B=6.5 Al=0 Li=1.7

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum $CaSO_4 \cdot 2H_2O$		Celestite $SrSO_4$		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	1.57	37.31	1.40	8.98	0.00	0.00	1.75	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	157.00	1.57	37.31	1.26	8.77	0.00	0.00	1.81	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86.00	300.00	1.59	37.43	1.13	8.52	0.00	0.00	1.88	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	443.00	1.62	37.56	1.02	8.24	0.00	0.00	1.95	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	585.00	1.64	37.69	0.92	7.93	0.00	0.00	2.02	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126.00	728.00	1.67	37.84	0.83	7.61	0.00	0.00	2.08	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	871.00	1.71	37.98	0.76	7.29	0.00	0.00	2.14	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	1014.00	1.75	38.12	0.69	6.97	0.00	0.00	2.20	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166.00	1157.00	1.79	38.26	0.64	6.67	0.00	0.00	2.26	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	1300.00	1.84	38.40	0.60	6.40	0.00	0.00	2.32	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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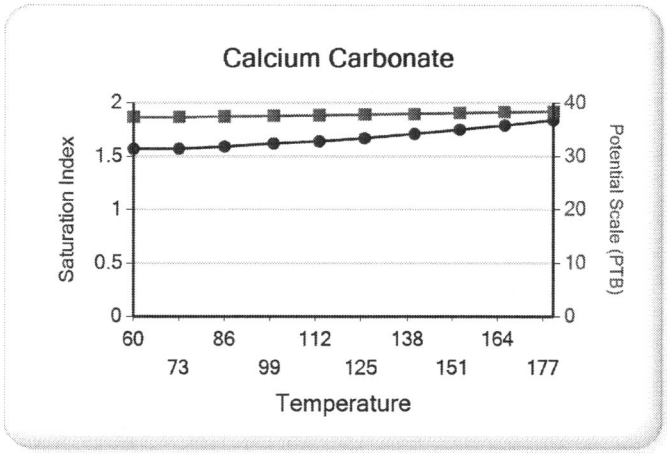
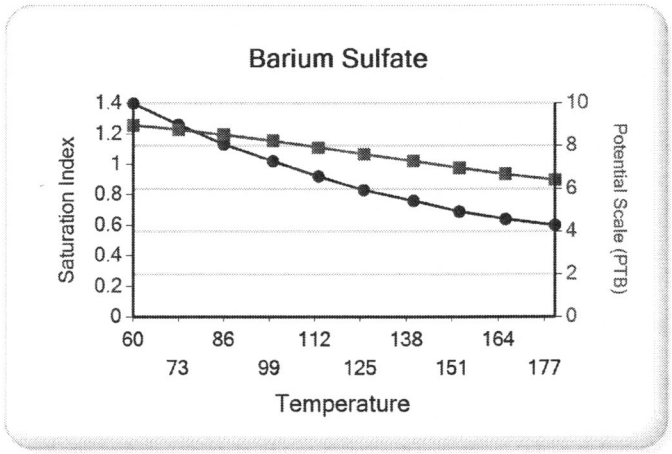
Water Analysis Report

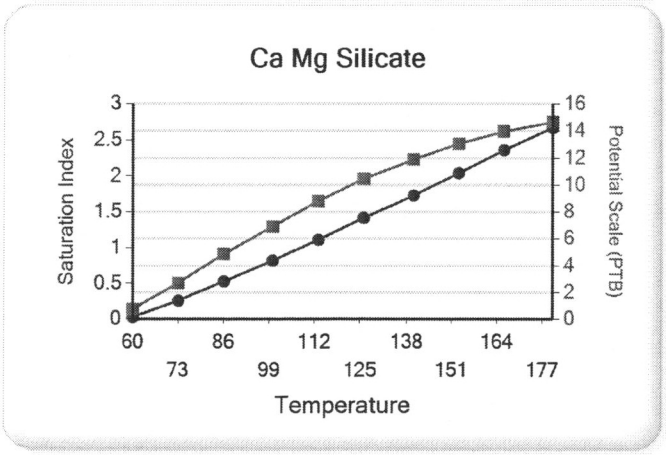
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.07	0.00	0.00	0.38	3.68	0.03	0.77	5.80	0.77
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.12	0.00	0.00	0.85	7.31	0.26	2.70	6.00	0.77
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.15	0.00	0.00	1.38	11.17	0.53	4.87	6.28	0.77
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.17	0.00	0.00	1.93	14.78	0.82	6.92	6.58	0.77
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.18	0.00	0.00	2.48	18.10	1.11	8.80	6.90	0.77
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	0.19	0.00	0.00	3.04	21.09	1.42	10.47	7.24	0.77
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.19	0.00	0.00	3.61	23.70	1.73	11.89	7.59	0.77
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	0.19	0.00	0.00	4.17	25.90	2.04	13.06	7.95	0.77
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.20	0.00	0.00	4.73	27.66	2.36	13.97	8.33	0.78
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	0.20	0.00	0.00	5.29	28.98	2.67	14.65	8.70	0.78

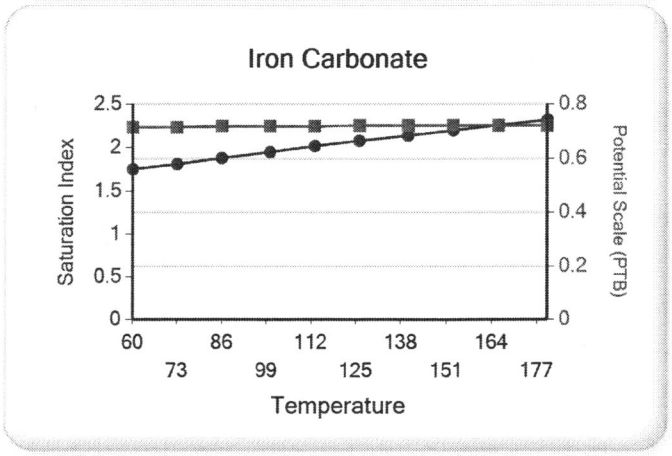
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate









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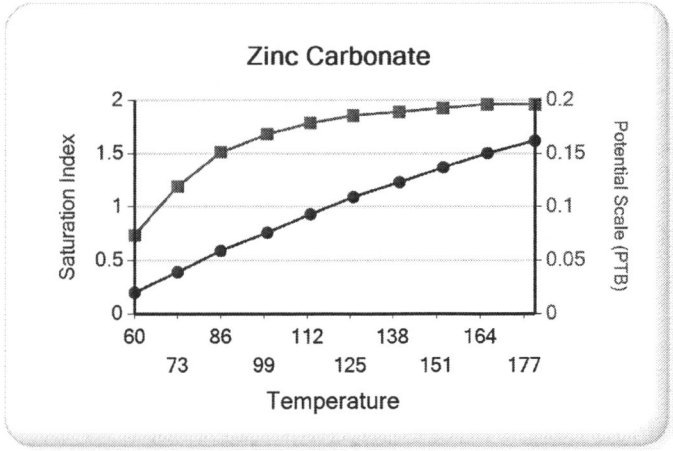
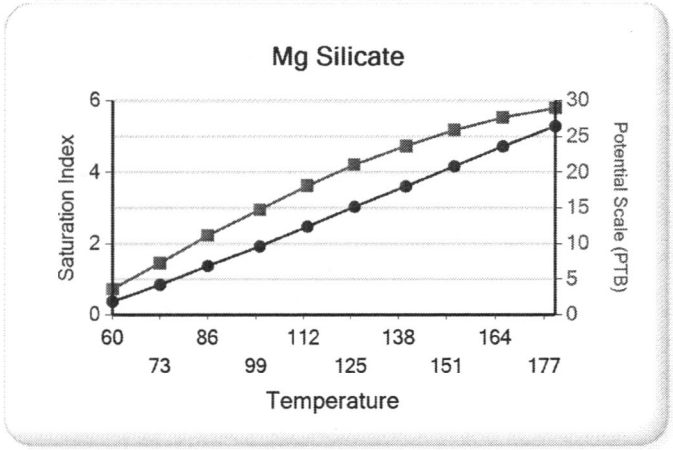
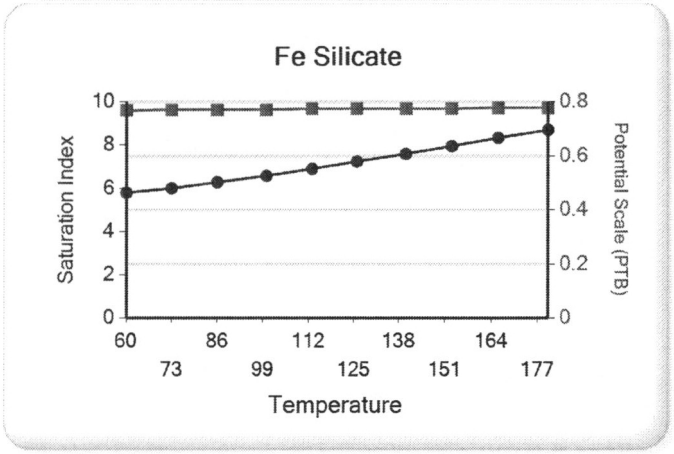
Water Analysis Report







Petroglyph Operating Company, Inc.
Annulus Pressure Cause and Mitigation Measures
2013 EPA Annual Injection Report

Well Name: Ute Tribal 18-07

UIC Permit Number: UT2736-06677

API Number: 43-013-31533

Cause of Pressure and Mitigation Measures:
This well sometimes builds up a small amount of pressure due to formation temperature. The pressure is relieved but returns and stabilizes below 200 PSIG.

PETROGLYPH

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
http://www.epa.gov/region08

AUTHORIZATION FOR ADDITIONAL WELL

UIC Area Permit No: UT20736-00000

The Antelope Creek Waterflood Final UIC Area Permit No. UT20736-00000, effective July 12, 1994, authorizes injection for the purpose of enhanced oil recovery into multiple lenticular sand units which are distributed throughout the lower portion of the Green River Formation. On May 8, 2000, the permittee provided notice to the Director concerning the following additional enhanced recovery injection well:

Well Name:	**Ute Tribal 18-07**
EPA Well ID Number:	**UT20736-06677**
Location:	2236 ft FNL & 1855 ft FEL SW NE Sec. 18 - T5S - R3W Duchesne County, Utah.

Pursuant to 40 CFR §144.33, Area UIC Permit No. UT20736-00000 authorizes the permittee to construct and operate, convert, or plug and abandon additional enhanced recovery injection wells within the area permit. This well was determined to satisfy additional well criteria required by the permit.

This well is subject to all provisions of UIC Area Permit No. UT20736-00000, as modified and as specified in the Well Specific Requirements detailed below. This Authorization shall expire one year after the Effective Date unless the permittee has converted the well to injection or submits a written request to extend this Authorization prior to the expiration date.

This Authorization is effective upon signature.

Date: APR 25 2006

Stephen S. Tuber
*Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

** The person holding this title is referred to as the Director throughout the Permit and Authorization*

WELL-SPECIFIC REQUIREMENTS

Well Name: **Ute Tribal 18-07**
EPA Well ID Number: **UT20736-06677**

Prior to commencing injection operations, the permittee shall submit the following information and receive written Authority to Inject from the Director:

1. a successful Part I (Internal) Mechanical Integrity test (MIT);
2. pore pressure calculation of the proposed injection zone; and
3. completed Well Rework Record EPA Form No. 7520-12 and schematic diagram.

Approved Injection Zone: Injection is approved between the base of the Green River A Lime Marker, at approximately 3756 ft (KB), to the top of the Basal Carbonate, at approximately 5767 ft (KB).

Maximum Allowable Injection Pressure (MAIP): The initial MAIP is **1720 psig,** based on the following calculation:

MAIP = [FG - (0.433)(SG)] * D, where
FG = 0.80 psi/ft SG = 1.002 D = **4698 ft** (top perforation depth KB)
MAIP = 1720 psig

UIC Area Permit No. UT20736-00000 also provides the opportunity for the permittee to request a change of the MAIP based upon results of a step rate test that demonstrates the formation breakdown pressure will not be exceeded.

Well Construction and Corrective Action: ***The following Corrective Action is required.***
The cement bond log did not provide evidence that the an effective barrier exist to significant upward movement fluid movement through vertical channels adjacent to the injection well bore. Therefore, the operator shall demonstrate Part II Mechanical Integrity within one-hundred and eighty (180) days after commencing injection and at least once every five (5) years thereafter using a temperature survey, noise log, oxygen activation log, or a radioactive tracer survey under certain circumstances.

Tubing and Packer: ***No Corrective Action is required.***
2-3/8" or similar size injection tubing is approved; the packer shall be set at a depth no more than 100 ft above the top perforation.

Corrective Action for Wells in Area of Review: ***No Corrective Action is required.*** The following wells that penetrate the confining zone are within or proximate to a 1/4 mile radius around the Ute Tribal No. 18-07 were evaluated to determine if any corrective action is necessary to prevent fluid movement into USDWs:

Well:	Ute Tribal No. 18-08	Location:	SE NE Sec. 18 - T5S - R3W
Well:	Ute Tribal No. 18-10	Location:	NW SE Sec. 18 - T5S - R3W

Demonstration of Mechanical Integrity: A successful demonstration of Part I (Internal) Mechanical Integrity using a standard Casing-Tubing pressure test is required prior to injection

and at least once every five years thereafter. EPA reviewed the cement bond log and determined the cement may not provide an effective barrier to significant upward movement of fluids through vertical channels adjacent to the well bore pursuant to 40 CFR 146.8 (a)(2). Therefore, further demonstration of Part II (External) Mechanical Integrity is required within 180 days after commencing injection and at least once every five years thereafter.

Demonstration of Financial Responsibility: The applicant has demonstrated financial responsibility via a Surety Bond that has been reviewed and approved by the EPA.

Plugging and Abandonment: The well shall be plugged in a manner that isolates the injection zone and prevents movement of fluids into or between USDWs. Tubing, packers, and any downhole apparatus shall be removed. Class A, C, G, and H cements, with additives such as accelerators and retarders that control or enhance cement properties, may be used for plugs; however, volume extending additives and gel cements are not approved for plug use. Plug placement shall be verified by tagging. Plugging gel of at least 9.2 lb/gal shall be placed between all plugs. A minimum 50 ft surface plug shall be set inside and outside of the surface casing to seal pathways for fluid migration into the subsurface. Within sixty (60) days after plugging the owner or operator shall submit Plugging Record (EPA Form 7520-13) to the Director. The Plugging Record must be certified as accurate and complete by the person responsible for the plugging operation. At a minimum, the following plugs are required:

PLUG NO. 1: Set a cast iron bridge plug (CIBP) no more than 50 ft above the top perforation at ft with a minimum 20 ft cement plug on top of the CIBP.

PLUG NO. 2: Set a minimum 200 ft cement plug inside of the 5-1/2" casing across the Trona Zone and the Mahogany Shale, between approximately 2543 ft (KB) to 2743 ft (KB).

PLUG NO. 3: Set a minimum 200 ft cement plug on the inside and backside (unless pre-existing backside cement precludes cement-squeezing this interval) of the 5-1/2" casing, across the USDW, between approximately 906 ft (KB) to 1106 ft (KB).

PLUG NO. 4: Set a minimum 200 ft cement plug on the inside and backside (unless pre-existing backside cement precludes cement-squeezing this interval) of the 5-1/2" casing, across the Green River , between approximately 1254 ft (KB) to 1454 ft (KB).

PLUG NO. 5: Set a cement plug inside of the 5-1/2" casing, from at least 425 ft to 475 ft.

PLUG NO. 6: Set a cement plug on the backside of the 5-1/2" casing, from surface to a depth of at least 50 ft.

PLUG NO. 7: Set a cement plug inside of the 5-1/2" casing from surface to a depth of at least 50 ft.

Cut off surface and 5-1/2" casing at least 4 ft below ground level and set P&A marker;

submit Sundry Notices and all necessary data as required by the EPA and other regulatory agencies.

Reporting of Noncompliance:

(a) Anticipated Noncompliance. The operator shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(b) Compliance Schedules. Reports of compliance or noncompliance with, or any progress on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than thirty (30) days following each schedule date.

(c) Written Notice of any noncompliance which may endanger health or the environment shall be reported to the Director within five (5) days of the time the operator becomes aware of the noncompliance. The written notice shall contain a description of the noncompliance and its cause; the period of noncompliance including dates and times; if the noncompliance has not been corrected the anticipated time it is expected to continue; and steps taken or planned to prevent or reduce recurrence of the noncompliance.

Twenty-Four Hour Noncompliance Reporting:

The operator shall report to the Director any noncompliance which may endanger health or environment. Information shall be provided, either orally or by leaving a message, within twenty-four (24) hours from the time the operator becomes aware of the circumstances by telephoning 1.800.227-8917 and asking for the EPA Region 8 UIC Program Compliance and Enforcement Director, or by contacting the Region 8 Emergency Operations Center at 303.293.1788 if calling from outside EPA Region 8. The following information shall be included in the verbal report:

(a) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW.

(b) Any noncompliance with a Permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

Oil Spill and Chemical Release Reporting:

The operator shall comply with all other reporting requirements related to oil spills and chemical releases or other potential impacts to human health or the environment by contacting the **National Response Center (NRC) 1.800.424.8802 or 202.267.2675,** or through the **NRC website at http://www.nrc.uscg.mil/index.htm.**

Other Noncompliance:

The operator shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted.

Other Information:

Where the operator becomes aware that he failed to submit any relevant facts in the

Permit application, or submitted incorrect information in a Permit application, or in any report to the Director, the operator shall submit such correct facts or information within two (2) weeks of the time such information became known to him.

WELL-SPECIFIC CONSIDERATIONS

Well Name: **Ute Tribal 18-07**
EPA Well ID Number: **UT20736-00000**

Underground Sources of Drinking Water (USDWs): USDWs in the Antelope Creek Waterflood area generally may occur within the Uinta Formation, which extends from the surface to the top of the Green River Formation at approximately 1354 ft. According to *"Base of Moderately Saline Ground Water in the Uinta Basin, Utah, State of Utah Technical Publication No. 92,"* the base of moderately saline ground water may be found at approximately 61 ft below ground surface at this well location. Petroglyph Energy, Inc. provided documentation stating that the base of the USDW was found at 1006 ft KB. Based on analysis of the submitted cement bond log (CBL) the top of casing cement in this well is at approximately 3010 ft (KB).

Confining Zone: The Confining Zone at this location is approximately 406 ft of interbedded limestone and shale between the depths of 3350 ft (KB) to 3756 ft (KB) which directly overlies the Injection Zone, based on correlation to the Antelope Creek Ute Tribal 04-03 well Type Log. Additional impermeable lacustrine shale beds above the Confining Zone provide for further protection for any overlying USDW.

Injection Zone: The Injection Zone at this well location is an approximately 2011 ft section of multiple lenticular sand units interbedded with shale, marlstone and limestone from the base of the Confining Zone at 3756 ft (KB) to the top of the Basal Carbonate Formation at 5767 ft (KB), based on correlation to the Antelope Creek Ute Tribal 04-03 well Type Log.

Well Construction: The CBL shows only 10 ft of 50% pipe amplitude bond through the confining zone. The remaining pipe amplitude bond through the confining zone is less than 50%.

Surface casing: 8-5/8" casing is set at 450 ft (KB) in a 12-1/4" hole, using 225 sacks cement circulated to the surface.

Longstring casing: 5-1/2" casing is set at 6003 ft (KB) in a 7-7/8" 6003 ft (KB) Total Depth hole with a plugged back total depth (PBTD) of 5500 ft (KB), cemented with 325 sacks cement.

Top of Cement (TOC): 3010 ft (KB) $_{CBL}$.

Perforations: Top perforation: **4698 ft (KB)** Bottom perforation: **5426 ft (KB)**

Wells in Area of Review (AOR): Construction and cementing records, including cement bond logs (CBL) as available, for two wells in the 1/4 mile AOR that penetrated the confining zone were reviewed and found adequate to prevent fluid movement out of the injection zone and into USDWs.

Well: Ute Tribal No. 18-08 ●	Casing Cement top: To Surface $_{CBL}$
Well: Ute Tribal No. 18-10 ●	Casing Cement top: 1900 ft (KB) $_{CBL}$